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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROJECT MERCURY

STATUS REPORT NO. 2

FOR

PERIOD ENDING APRIL 30, 1959

By Langley Space Task Group

INTRODUCTION

This report is the second in a series of reports on the status of the NASA manned-satellite project, PROJECT MERCURY. Status Report No. 1 covered the period ending January 31, 1959.

During the past three months the following major tasks have been accomplished:

1. The formal contract between NASA and McDonnell Aircraft Corporation for the space capsule construction was signed in early February.

2. A mock-up of the NASA-McDonnell capsule was completed at the contractor's plant and was inspected by a Mock-Up Inspection Board on March 17 and 18, 1959.

3. The research and development program has continued and arrangements have been concluded for most of the test support to be supplied by the NASA Research Centers. Experiences in the air-drop program with full-scale capsules resulted in a change from "extended-skirt" to "ring-sail" for the main parachute configuration. Successful drops using the ring-sail parachute have since been made.

4. The first full-scale escape-rocket test simulating the pad-abort case was unsuccessful because of a nozzle failure on the Recruit rocket being used for the interim tests. A second escape-rocket test using improved nozzles was a complete success.

5. Working groups and panels are operating with NASA, contractor, and armed-service personnel to establish detailed plans and procedures for that part of the flight program which involves military boosters and operations at the Air Force Missile Test Center (AFMTC), Cape Canaveral. Schedules for those flights involving military boosters have become more firm.

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6. The MERCURY range problem is under active study by a group in the Instrument Research Division (IRD) at the Langley Research Center and a bidder's briefing for potential range contractors was held at Langley on April 2, 1959.

7. An NASA-Department of Defense panel has been established to study the MERCURY Recovery plan; this panel is now operating.

8. The crew-selection program has been completed. Seven service test pilots (three Air Force, three Navy, and one Marine) were selected, and all reported to the Langley Space Task Group to begin their training on April 27, 1959.

The following pages describe the status of the PROJECT MERCURY programs in more detail.

PRESENT STATUS - MAJOR SYSTEMS

The present status, schedules, and other plans for the various major systems of PROJECT MERCURY are given in the following pages.

Capsule

General.- The basic configurations of the space-flight capsule and its primary subsystems have not been changed appreciably during the past three months. The capsule is described in figures 1 and 2 and in Status Report No. 1. The formal contract with McDonnell Aircraft Corporation for the capsule was signed on February 6, 1959. On April 21, 1959, McDonnell submitted to NASA a proposed set of detailed specifications for the capsule. These specifications are now being reviewed by the Langley Space Task Group (STG).

Mock-Up Inspection Board changes.- As a result of a detailed inspection of the capsule mock-up at the McDonnell plant on March 17 and 18, 1959, various changes have been recommended. The major changes suggested by the Mock-Up Inspection Board are:

1. Restudy provisions made for pilot egress.
2. Rearrange crew space to make handles, actuators, and other instruments more accessible to pilot.
3. Modify clock, sequence lights, and other displays.

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